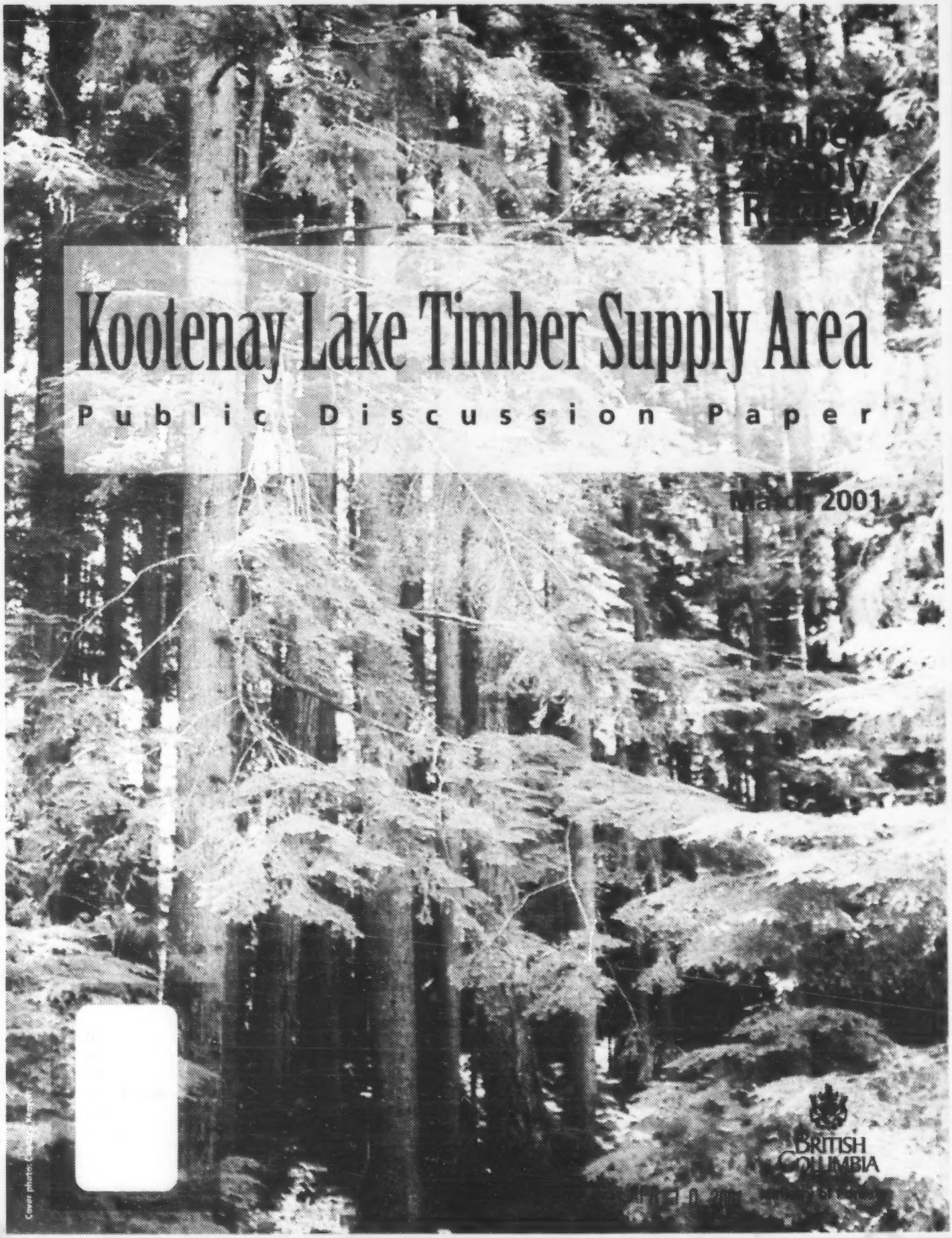

Kootenay Lake Timber Supply Area

Public Discussion Paper

March 2001

BRITISH COLUMBIA

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Introduction

The British Columbia Forest Service is reviewing the timber supply for all timber supply areas (TSAs) and tree farm licences (TFLs) in the province. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, the chief forester may, if necessary, adjust the allowable annual cut (AAC) for the Kootenay Lake TSA.

The chief forester reviews and sets new AACs for all TSAs and TFLs. The objectives of the Timber Supply Review are:

- to identify relevant current forest management practices and assess their effects on short- and long-term timber supply, and identify related economic, environmental and social factors
- to identify where improved information is required for future timber supply forecasts
- to provide the chief forester with information to use when making AAC determinations that will apply for the next five years

Timber Supply Review in the Kootenay Lake TSA

The *Kootenay Lake TSA Data Package* and *Information Report* were released in May 1999. Following the release, the documents were reviewed by licensees, the public and government agencies. The BC Forest Service has now completed the *2001 Kootenay Lake TSA Analysis Report*, which is summarized in this discussion paper. The objectives of this document are to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Kootenay Lake TSA, and to encourage them to provide comments during the 60-day public review period. Public comments will be accepted until **May 22, 2001.**

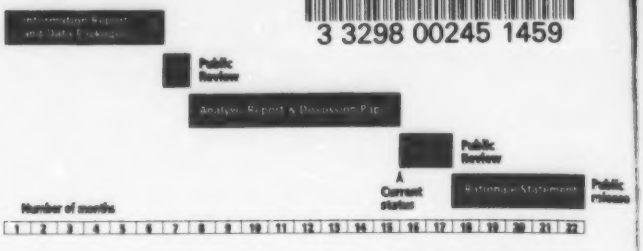
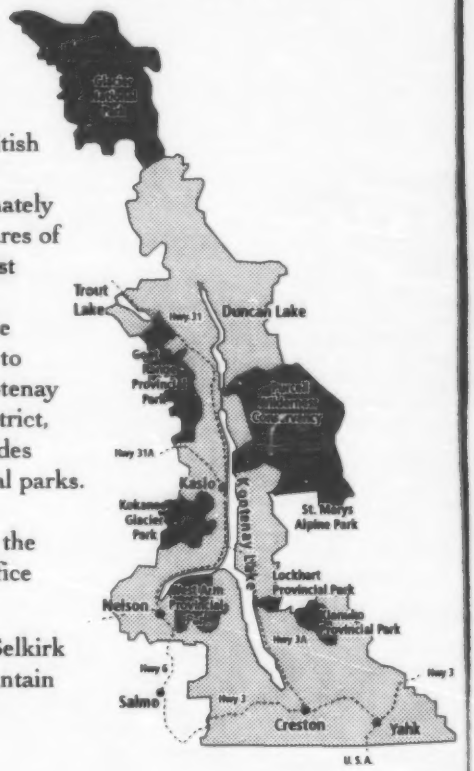

Public Review
Public Review
A
Current status
Public release
Number of months
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Figure 1. *Review process for the Kootenay Lake TSA*

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester will outline his determination in a rationale statement that, along with the summary of public input, will be publicly available upon release. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA

The Kootenay Lake Timber Supply Area is located in southeastern British Columbia and covers approximately 1.2 million hectares of the Nelson Forest Region. The boundaries of the TSA are similar to those of the Kootenay Lake Forest District, which also includes several provincial parks. The TSA is administered by the forest district office near Nelson.



Situated in the Selkirk and Purcell mountain

** A timber supply area is an integrated resource management unit established in accordance with section 7 of the Forest Act.*

ranges, the Kootenay Lake TSA encompasses three major drainage systems (Kootenay Lake, Duncan River and Lardeau River). The Kootenay Lake TSA is bordered by Glacier National Park in the north and by the Canada-U.S. border in the south. West of the Kootenay Lake TSA is the Arrow TSA, while to the east are the Invermere and Cranbrook TSAs.

The Kootenay Lake TSA has experienced significant growth. The current population is approximately 34,500, an increas of 4.5 per cent since the 1996 Census. Nearly one-half of the population lives in the three largest centres of Nelson, Creston and Kaslo. The TSA includes many other smaller communities, both incorporated and unincorporated.

The natural resources

The forests of the Kootenay Lake TSA provide a wide range of natural resources, including timber, water, minerals, forage, fisheries, wildlife, scenic landscapes and recreation opportunities.

Forests in the Kootenay Lake TSA are among the most productive in the interior of the province. In addition, lower elevation forests have the greatest diversity of tree species in B.C. Within the land base currently considered available for timber harvesting, Douglas-fir, western larch, Engelmann spruce, subalpine fir, lodgepole pine, western redcedar and western hemlock predominate, while white pine, Ponderosa pine, whitebark pine, aspen, birch and cottonwood occur in smaller amounts. The timber harvesting land base—the area considered available for harvesting—comprises about 21 per cent of the Kootenay Lake TSA.

The diverse forests of the Kootenay Lake TSA support an abundance and wide variety of wildlife. Large mammals include black bear, grizzly bear, moose, cougar, elk, mountain goat, bighorn sheep, and mule and white-tailed deer. The TSA overlaps the range of one of the largest and most viable populations of mountain caribou in Canada. Seventy per cent of the bird species known to occur in B.C. and 62 per cent of bird species that breed in the province are found within the Kootenay Lake area. The area also contains one of the highest breeding concentrations of ospreys in the world.

The Forest Practices Code outlines a process for identifying species at risk that require special management. Currently, 12 species identified as at risk may be found in the Kootenay Lake TSA, including grizzly bear, mountain goat and bull trout.

Water is a primary and fundamental resource of the Kootenay Lake TSA. Rivers and lakes are home to numerous fish species including kokanee, rainbow trout, Gerrard trout, Westslope cutthroat, bull trout, whitefish, eastern brook trout, burbot and white sturgeon. As well, approximately 36 per cent of the timber harvesting land base is managed with a priority on protecting water quality and quantity for consumptive uses.

Both residents and tourists enjoy outdoor recreation activities such as hiking, camping, hunting, fishing, wildlife watching, boating, mountain-biking, snowmobiling, and ski touring. The TSA includes part or all of several parks, including Bugaboo Alpine Recreation Area, Purcell Wilderness Conservancy, and Kokanee Glacier, Lockhart, Kianuko, West Arm and Goat Range provincial parks. Numerous recreation trails and campsites are scattered throughout the TSA.

Community Forests

There are three community forests in the Kootenay Lake TSA. They are located in Creston Valley, Kaslo and Harrop-Procter (about 30 kilometres northeast of Nelson). They are administered by the Creston Valley Forest Corporation, Kaslo and District Community Forest Society and the Harrop-Procter Community Co-operative, respectively. The chief forester will consider the community forests in the upcoming allowable annual cut determination.

Land-use planning

In 1995, the provincial government released the Kootenay-Boundary Land Use Plan, which included the Kootenay Lake TSA. The plan resulted in the creation of several new parks wholly or partially within the TSA. In July 1997, the government approved the Kootenay-Boundary Land Use Plan—Implementation Strategy that provided management direction. In June 2000, a Higher Level Plan was drafted that incorporates some of the policies from the implementation strategy. Following a 60-day public review, the provincial government approved the Kootenay-Boundary Higher Level Plan Order in December 2000, and the plan went into effect on Jan. 31, 2001. The plan contributes to maintaining biodiversity; restoring fire-maintained ecosystems; requiring logging practices to better reflect natural disturbance patterns; greater certainty for industry and the environment; and conserving old-growth forests, wildlife corridors, scenic landscapes, domestic watersheds, and caribou and grizzly bear habitats.

The chief forester will consider land-use planning information in the upcoming allowable annual cut determination.

Current allowable annual cut

The current allowable annual cut (AAC) in the Kootenay Lake TSA is 700,000 cubic metres. This level was set by the chief forester on March 10, 1995, and was a 22 per cent reduction from the previous level of 900,000 cubic metres.

Socio-economic profile

Regional economy

Overall, the communities in the Kootenay Lake TSA are economically diversified. As Figure 2 shows, the major employment sectors in the Kootenay Lake TSA are the public sector, forestry, tourism and construction. Forestry is the largest contributor to private-sector employment, while tourism ranks second and has demonstrated significant growth and investment in recent years.

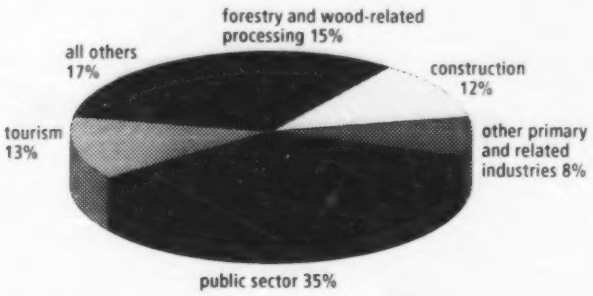


Figure 2. *Kootenay Lake TSA - Total Employment by Basic Sector, 1996*
Source: 1996 Census

The forest sector supports numerous other jobs in the area through companies and employees purchasing goods and services from local businesses. Each 100 full-time direct forestry jobs in the Kootenay Lake TSA are estimated to support another 34 to 109 jobs, depending on the forestry activity (harvesting or timber processing). In comparison, 100 direct jobs in the tourism sector support an estimated seven to 20 indirect and induced jobs.

	TSA	Provincial
Direct employment (person years)	668	1,011
Total employment (person years)	1,024	2,287
Total employment income ($1999 millions per year)	41.9	86.2
Provincial government revenues ($1999 millions per year)	n.a.	21.9

Table 1. *Summary of local and provincial economic information associated with the current AAC.*

Table 1 illustrates the potential contribution of the forest industry associated with the Kootenay Lake TSA timber harvest to both the regional and provincial economies. Figures in this table are based on the current AAC of 700,000 cubic metres.

Timber supply forecasts

A timber supply computer model was used to project several possible timber supply forecasts for the next 250 years. One of these forecasts is the base case forecast that illustrates the effect of current forest management on timber supply. The base case is not an AAC recommendation, but rather one of many sources of information the chief forester will consider when setting the AAC.

The base case forecast is presented in this report for discussion and comparison; due to areas of uncertainty, the AAC determined by the chief forester may be greater or less than the level forecast in the base case.

The base case forecast for the Kootenay Lake TSA indicates that a harvest level of 691,000 cubic metres per year—the current AAC adjusted to account for 9,000 cubic metres transferred to woodlot licences—can be maintained for the next 50 years. The analysis projects that after 50 years the base case harvest forecast will decline by 10 per cent to 622,000 cubic metres per year for 10 years before declining another three per cent to the steady long-term harvest level of 605,000 cubic metres per year.

The chief forester will consider land-use planning information in the upcoming allowable annual cut determination.

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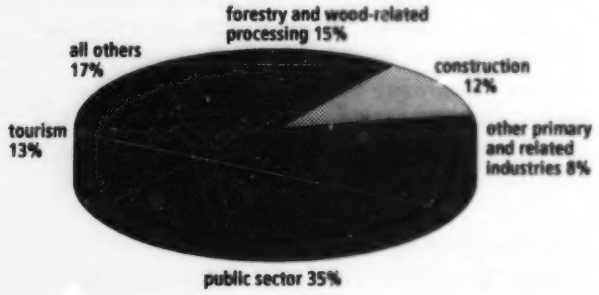

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	TSA	Provincial
Direct employment (person years)	688	1,611
Total employment (person years)	1,624	2,297
Total employment income ($1999 millions per year)	41.9	86.2
Provincial government revenues ($1999 millions per year)	n.a.	21.0

Table 1. *Summary of local and provincial economic information associated with the current AAC.*

Table 1 illustrates the potential contribution of the forest industry associated with the Kootenay Lake TSA timber harvest to both the regional and provincial economies. Figures in this table are based on the current AAC of 700,000 cubic metres.

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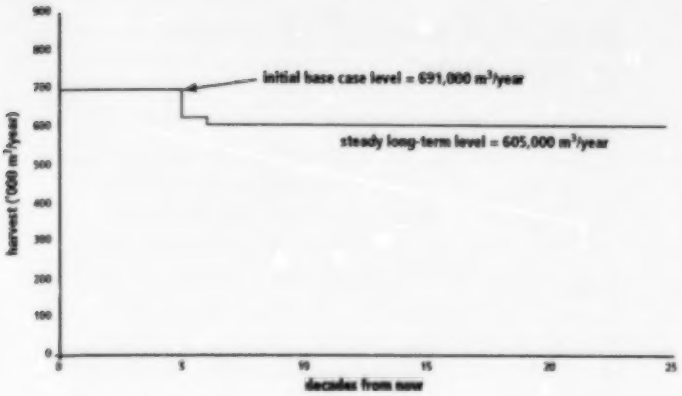

Figure 3.
Base case forecast for the Kootenay Lake TSA, 2001

Compared to the 1993 timber supply analysis, several changes have occurred in the Kootenay Lake TSA that affect the base case timber supply forecast. Implementation of the Forest Practices Code, including further reductions for riparian areas, wildlife tree patches and requirements for old-growth forest, has affected timber availability. As well, as a result of new parks established under the Kootenay-Boundary Land-Use Plan, the current timber harvesting land base is 13 per cent smaller than in 1993.

However, the base case shows that the initial harvest level could be maintained for 30 years longer and the long-term harvest level could be 23 per cent higher than in 1993. The change in the forecast is due to a number of factors, among them: an initial harvest level that is almost 14 per cent lower than in 1993; increased yields from managed stands; and reductions in unsalvaged loss estimates and in the time estimated for stands to become harvestable.

Sensitivity analyses: examining uncertainty

Because forests are complex and constantly changing, timber supply analysts assess how their timber supply forecast results might be affected by uncertainties in the inventory information and management practices. These uncertainties are generally examined in sensitivity analyses, which the chief forester will consider in determining an AAC. The sensitivity analyses are useful for assessing how any changes in information or uncertainties and risks might affect timber supply.

In the Kootenay Lake TSA, a number of sensitivity analyses were conducted to examine the stability of the timber supply in light of uncertainties. Three sensitivity analyses are described below. For a complete listing of sensitivity analyses, please refer to the 2001 Kootenay Lake TSA Analysis Report.

Uncertainty about estimates of timber volumes in existing stands

The estimates of timber volumes for existing unmanaged stands are affected by uncertainties in forest inventory measurements—such as estimated tree heights and stand ages—and in the statistical process used to predict forest growth and yield. Figure 4 shows that if existing stand volumes are decreased by 10 per cent, the current harvest level would have to drop immediately to 622,000 cubic metres per year, or 10 per cent lower than the base case initial harvest level. If existing stand volumes are increased by 10 per cent, the initial harvest level could continue for four decades longer than the base case forecast, or a higher initial harvest level could be supported for a shorter period of time.

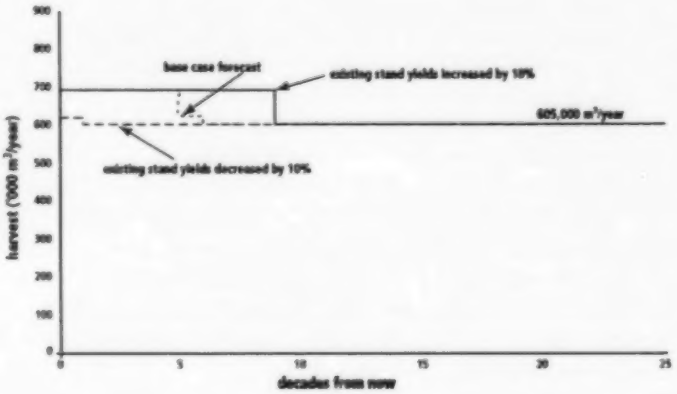

Figure 4. Harvest forecasts if the existing unmanaged stand yields are increased or decreased by 10 per cent—Kootenay Lake TSA, 2001

Uncertainty about visual quality management objectives

Maintaining visual quality is an important forest management objective in the Kootenay Lake TSA where about 35 per cent of the timber harvesting land base is subject to visual quality management. Sensitivity analyses showed that if the disturbance limits were relaxed by five per cent the initial harvest level could be maintained for two decades longer and the long-term harvest level increased by five per cent. However, as Figure 5 illustrates, when the disturbance levels were restricted to the lower limit for each visual quality class, the timber supply was reduced in the short-, medium- and long-term.

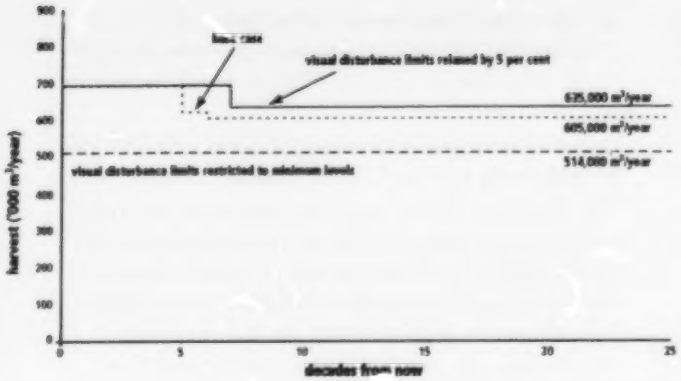

Figure 5. *Harvest forecasts showing the effects of changes to the permissible disturbance levels in visually sensitive areas—Kootenay Lake TSA, 2001*

Old-Growth Site Index Research

The results of two recent provincial studies suggest that the future productivity of sites currently occupied by old-growth stands may be underestimated. The research shows that the measured productivity of existing second-growth stands is higher than the productivity estimates using measurements from old-growth stands growing on ecologically similar sites. These results are based on the maximum potential site productivity that might be achieved under ideal conditions. However, in the field, regeneration and subsequent growth does not always occur under ideal conditions due to factors such as competition from brush or overstocking. Therefore, some stands may not reach the potential productivity suggested by this research

The results of these studies are of interest in the Kootenay Lake timber supply area, as stands older than 140 years make up 19 per cent of the timber harvesting land base. The old-growth site index adjustments from provincial studies indicate that the long-term harvest level could be as much as 11 per cent higher than the base case forecast. While, there are no local studies to verify the application of the results of the provincial studies to the Kootenay Lake timber supply area, the results of the sensitivity analysis indicate that the long-term timber supply could be higher than estimated in the base case forecast.

Implications of changes in the AAC

Environmental Implications

Current forest management follows the standards set out by the Forest Practices Code. These standards are designed to maintain a range of biodiversity and wildlife values. In addition, the Kootenay-Boundary Higher Level Plan Order provides direction on a variety of environmental considerations. In the Kootenay Lake analysis area, about 58 per cent of the productive forest is not considered available for timber harvesting. Forested area both in and outside of the timber harvesting land base will help to maintain critical forest habitats for many species. Forest cover requirements for biodiversity, scenic areas, ungulate winter range, caribou habitat, community watersheds and domestic watersheds were included in the analysis.

First Nations Implications

Three First Nations have identified traditional territories within the Kootenay Lake TSA: the Ktunaxa/Kinbasket, Shuswap and Okanagan. The Lower Kootenay Band (a member of the band Ktunaxa/Kinbasket Tribe) is the only First Nation with a reserve and/or community within the TSA. Located at Creston, the band has approximately 160 members. While the band's major revenue comes from land leases to local agricultural producers, the band council is pursuing economic diversification through traditional practices such as trapping, fishing, hunting and guiding, and botanical forest products. The band has a growing interest in forest management through ongoing consultation with Forest Service and industry staff. A number of band members are employed at local forest companies.

The Ktunaxa/Kinbasket First Nation has submitted a comprehensive land claim that covers the southeast corner of the province, including the Kootenay Lake TSA. Once the land claim has been finalized, it will be considered in future timber supply reviews.

Community Implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. The base case harvest forecast for the Kootenay Lake TSA suggests the current harvest level of 691,000 cubic metres (which excludes 9,000 cubic metres transferred to woodlots) can be maintained for the next 50 years.

Given that the average actual harvest level from 1997 through 1999 was 602,940 cubic metres per year—or about 14 per cent lower than the current AAC—there could be an increase in employment or other industry-related activity in the Kootenay Lake TSA if the base case is fully harvested. In addition, the timber supply forecast shows that based on the current harvest level, the level of forest activity could continue to be stable in the short term.

Your input is needed

Establishing the AAC is an important decision that requires well-informed and thoughtful public input. Feedback is welcomed on any aspect of this discussion paper, the *2001 Kootenay Lake TSA Analysis Report* and other issues related to the timber supply in the Kootenay Lake TSA. Forest Service staff would be pleased to answer questions or discuss concerns that would help you prepare your response. Please send your comments to the forest district manager at the address below. Your comments will be accepted until **May 22, 2001.**

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the *Freedom of Information and Protection of Privacy Act* and may be made public. If the responses are made public, personal identifiers will be removed before the responses are released.

A summary of public comments will be attached to the AAC rationale and will be available from the district office when the chief forester's AAC determination is announced.

For more information contact and/or mail your comments to:
District Manager
BC Forest Service
Kootenay Lake Forest District
Site address: 1907 Ridgewood Road, Nelson, B.C.
Mail address: RR1 S22 C27, Nelson, B.C. V1L 5P4
Phone: (250) 825-1100, Fax: (250) 354-6290

Or electronically mail to
Dale.Anderson@gems5.gov.bc.ca

Visit our Web site at http://www.for.gov.bc.ca/tsb

Background Information Regarding TSR

The Chief Forester's Responsibility

Determining the allowable annual cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the *Forest Act*, Section 8. It states that the chief forester shall specifically consider the following factors:

1. The rate of timber production that may be sustained from the area, taking into account:
   - the composition of the forest and its expected rate of growth
   - the time that it will take the forest to become re-established
   - silviculture treatments, including reforestation
   - standards of timber utilization
   - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The nature, production capabilities and timber requirements of established and proposed processing facilities.
4. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.
5. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be readily measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.

Why the current AAC may be higher than the long-term harvest level.

Some concern has been expressed that the AACs are higher than the long-term harvest level. There are two main factors that explain this difference:

- In the short term, harvesting takes place in older forests that have accumulated high timber volumes by growing for a long time. Future harvesting on the same sites will take place in second-growth forests at younger ages, often yielding lower volumes per hectare.
- Where the long-term harvest level is significantly below the current AAC, the chief forester's strategy is to gradually reduce the AAC in a managed transition to the lower level over several decades (provided the long-term harvest level is not jeopardized). This allows communities that rely on the forest sector to avoid sudden economic disruptions and to plan for the future.

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